

Applic. No. 10/727,205
Amdt. dated January 17, 2007
Reply to Office action of October 17, 2006

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Claim Amendments

This listing of the claims will replace all prior versions,
and listings, of claims in the application:

Claim 1 (withdrawn): A method of fixing a tool in a clamping
chuck, which comprises:

providing an apparatus according to claim 17;

determining an actual position of the tool along an insertion
direction;

inserting the tool into the clamping chuck along the insertion
direction, based on the actual position, until a desired
position is reached; and

fixing the tool in the desired position in the clamping chuck.

Claim 2 (withdrawn): The method according to claim 1, wherein
the tool is a shank-type tool.

Claim 3 (withdrawn): The method according to claim 1, wherein
the insertion direction is defined along a longitudinal axis
of the tool.

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Claim 4 (withdrawn): The method according to claim 1, which comprises determining the actual position before and/or during the step of inserting the tool into the clamping chuck.

Claim 5 (withdrawn): The method according to claim 1, which comprises heating the clamping chuck for receiving the tool and cooling the clamping chuck after the desired position of the tool has been reached for fixing the tool.

Claim 6 (withdrawn): The method according to claim 1, which comprises determining an actual position of a tool cutting edge of the tool.

Claim 7 (withdrawn): The method according to claim 1, which comprises determining an actual position of a tool tip of the tool.

Claim 8 (withdrawn): The method according to claim 1, which comprises defining the desired position with regard to a reference position on the clamping chuck.

Claim 9 (withdrawn): The method according to claim 8, which comprises determining at least one of the actual position, the desired position, and the reference position in a non-contact manner.

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Claim 10 (withdrawn): The method according to claim 9, which comprises determining the respective positions with a measuring configuration having an optical system.

Claim 11 (withdrawn): The method according to claim 10, which comprises repeatedly checking at least one of the actual position, the desired position, and the reference position in a non-contact manner.

Claim 12 (withdrawn): The method according to claim 1, which comprises rotating at least one of the tool and the clamping chuck about a rotational axis during the step of inserting the tool into the clamping chuck.

Claim 13 (withdrawn): The method according to claim 12, which comprises rotating the tool and the clamping chuck about a common rotational axis.

Claim 14 (withdrawn): The method according to claim 2, which comprises subsequently unshrinking the tool from the clamping chuck.

Claim 15 (withdrawn): The method according to claim 1, which comprises holding the tool outside the clamping chuck for the

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step of determining the actual position and subsequently
inserting the tool into the clamping chuck until the desired
position is reached.

Claim 16 (withdrawn): The method according to claim 1, which
comprises permanently or temporarily measuring the actual
position of the tool during the inserting step along the
insertion direction and inserting the tool on a basis of the
measured actual position.

Claim 17 (currently amended): An apparatus for fixing at
least one tool in a clamping chuck, the apparatus comprising:

a device for inserting the tool into the clamping chuck;

a configuration for determining an actual position of the tool
before and/or during an insertion of the tool into the
clamping chuck;

a positioning device having a tool-clamping device for
positioning the tool in the clamping chuck utilizing
information obtained with regard to the actual position of the
tool for setting a desired position of the tool inside the
clamping chuck; and

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a computer configured for controlling said tool-clamping device during operation from the ~~determined~~ actual position to the desired position.

Claim 18 (original): The apparatus according to claim 17, which further comprises a heater for heating the clamping chuck for receiving the tool.

Claim 19 (original): The apparatus according to claim 17, which further comprises a position monitoring system for non-contact determination or checking of at least one of the actual position, the desired position, and a reference position on the clamping chuck, wherein the desired position of the tool is defined relative to the reference position.

Claim 20 (original): The apparatus according to claim 17, which comprises a device for rotating at least one of the clamping chuck and the tool about a common rotational axis.

Claim 21 (previously presented): The apparatus according to claim 17, wherein said computer computes a transverse path of said tool-clamping device from the determined actual position to the desired position during operation.

Claim 22 (cancelled).

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Claim 23 (previously presented): The apparatus according to claim 17, wherein said computer is configured to guide said tool-clamping device to the desired position without a mechanical stop.

Claim 24 (previously presented): The apparatus according to claim 17, wherein said computer is configured for photogram image processing.

Claim 25 (previously presented): The apparatus according to claim 17, wherein said computer is configured to complete a correction calculation.

Claim 26 (previously presented): The apparatus according to claim 17, wherein said positioning device includes a cross slide, said tool-clamping device is fastened to said cross slide.

Claim 27 (previously presented): The apparatus according to claim 17, wherein said tool-clamping device includes a rotary unit.

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Claim 28 (previously presented): The apparatus according to claim 27, wherein said rotary unit includes drive rollers and a housing, said drive rollers are disposed in said housing.

Claim 29 (previously presented): The apparatus according to claim 27, wherein said rotary unit includes clamping slides and a housing, said clamping slides are disposed in said housing.

Claim 30 (previously presented): The apparatus according to claim 17, further comprising a loading and unloading magazine having a plurality of loading and unloading stations.

Claim 31 (previously presented): The apparatus according to claim 17, further comprising a cooling station.